

NEW RECORDS OF *POA* (POACEAE) AND *POA PFISTERI*:
A NEW SPECIES ENDEMIC TO CHILE

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ABSTRACT

The distributions of several narrowly endemic species of *Poa* in Chile and Argentina are discussed. *Poa hachadoensis* var. *pilosa* and *P. mendocina* are newly reported for Chile. ***Poa pfisteri*** is described as a new species endemic to Chile. A key to *Nicoraepoa* and *Poa* species (except species of *Poa* sect. *Dioicopoa*) that grow in Chile from Coquimbo southward is provided.

RESUMEN

Se discuten las distribuciones restringidas de varias especies endémicas de *Poa* en Chile y Argentina. Tanto *P. hachadoensis* var. *pilosa* como *Poa mendocina* se citan nuevamente para Chile. ***Poa pfisteri*** se describe como una nueva especie endémica de Chile. Se da una clave de las especies de *Nicoraepoa* y de *Poa* (excepto las especies de *Poa* sect. *Dioicopoa*) que crecen en Chile de Coquimbo hacia el sur.

The genus *Poa* L. is highly developed in Argentina and Chile with 58 and 39 species, respectively, accepted by Soreng et al. (2003, on-line version updated Jan 2008) in the Catalogue of New World Grasses (<http://mobot.mobot.org/W3T/Search/nwgc.html>). Most of the Chilean species are shared with Argentina. Only two species of *P.* sect. *Dioicopoa* E. Desv. (*P. cumingii* Trin. and *P. paposana* Phil.), and one new species described here, are thought to be endemic to Chile whereas 20 species are considered to be endemic to Argentina (Soreng et al. 2003, updated Jan 2008). Other than the Soreng et al. (2003) index, *Poa* has not been systematically treated in Chile since the early accounts by Desvaux (1854), Steudel (1854), and by R.A. Philippi who named 36 new species between 1858 and 1891 (see Muñoz Pizarro 1960). Regional floras for Patagonia (Nicora 1978) and Tierra del Fuego (Moore 1983) include species of *Poa* that occur in the southern third of Chile; these include keys, descriptions, and illustrations. Negritto and Anton (2000) revised the genus for the five northwestern provinces of Argentina, and Giussani (2000) revised Argentina's taxa of *P.* sect. *Dioicopoa*. These treatments leave a major gap in our knowledge for the occurrence of *Poa* in Chile, especially for the northern two-thirds of the country. Marticorena and Quezada (1985), with assistance of Oscar Matthei, pared down the number of accepted species of *Poa* in Chile to 65 (no synonyms were listed). As Marticorena and Quezada (1985) suggested, the nomenclature and taxonomy of many large genera in Chile was in chaos, and their listing of taxa in these genera was only provisional. For example, of the 36 species of *Poa* named by R.A. Philippi only three are accepted today (Soreng et al. 2003, updated on-line in Jan 2008; includes distribution by country, synonymy, and classification with species placed in an infrageneric arrangement).

From November 2001 to February 2002 RJS (R.J. Soreng) visited Chile to collect and study the genus *Poa* in the region. In CONC (Universidad de Concepción) and SGO (Museo Nacional de Historia Natural, Santiago), the two main herbaria in Chile, herbarium specimens were found that appeared to represent seven new taxa and another specimen was newly collected that potentially seemed to be new to science. RJS was able to recollect all but one of them in Chile or on subsequent trips with PMP (P.M. Peterson) to Argentina (2003 and 2006). This paper describes the fate of these eight unknowns, five of which were recently identified as occurring in Chile (Soreng et al. 2003), and one that is described here as a new species endemic to Chile.

Three of these unknowns, *Poa planifolia* Kuntze, *P. subnervis* var. *spgazziniana* Nicora, and *P. pugioni-*

folia Speg., were identified more readily than the others by comparison with type material. There are no keys to identify the first two species. Although Muñoz Pizarro (1941) considered the first to be a Chilean species from the type locality of Paso Cruz, Marticorena and Quezada (1985) did not mention it for Chile, presumably as it had not been verified as occurring on their side of the border. The second two were reported as occurring in Chile for the first time by Soreng et al. (2003), with some newer stations for them reported by Soreng and Gillespie (2007). *Poa planifolia* and *P. subenervis* var. *spgazziniana* were found in the high arid Andean valleys east of Santiago, and *P. pugionifolia* (often misspelled as “*pungionifolia*”) was found in the Region of Magallanes, Province of Última Esperanza in the Sierra Baguales, along with *P. subenervis* var. *subenervis* that in Chile is also only known from this interesting mountain range. Soreng and Gillespie (2007) transferred the later two species to the new genus *Nicoraepoa* Soreng & L.J. Gillespie, as *N. pugionifolia* (Speg.) Soreng & L.J. Gillespie and *N. subenervis* (Hack.) Soreng & L.J. Gillespie [with subsp. *subenervis* and subsp. *spgazziniana* (Nicora) Soreng & L.J. Gillespie], along with four other Patagonian species previously separated as *Poa* subgen. *Andinae* Nicora; now *N. andina* (Trin.) Soreng & L.J. Gillespie, *N. chonotica* (Phil.) Soreng & L.J. Gillespie, *N. erinacea* (Speg.) Soreng & L.J. Gillespie, and *N. robusta* (Steud.) Soreng & L.J. Gillespie.

Although also reported from several locations in Argentina, two other unidentified specimens were attributable to *Nicoraepoa subenervis* subsp. *subenervis* and *Poa hachadoensis* Nicora var. *hachadoensis*, previously reported from single collections in Chile (Nicora 1977, 1978). These taxa were accepted by Marticorena and Quezada (1985) as occurring in Chile, but no vouchers had yet been identified for these taxa at CONC or SGO.

Three remaining unidentified specimens were still potentially considered to be new species of *Poa*, and these, along with new vouchers for *P. hachadoensis* var. *hachadoensis* are discussed below.

RESULTS AND DISCUSSION

Poa mendocina Nicora & F.A. Roig.—One specimen from the high Andes east of Santiago (Villagrán et al. 8484) certainly seemed new, until in 2003 a similar herbarium specimen from 3100 m in the Province of Mendoza, Argentina, named “*Poa mendocina* ined.” was discovered at BAA. This isotype had been filed in the general collections rather than with the types at BAA, and thus was buried in this large genus. Only later was it realized that *Poa mendocina* was already published and illustrated by Nicora & Roig (1998). This name had made it into the Catalogue of New World Grasses as a tentatively accepted taxon, endemic to Argentina (Zuloaga et al. 2008), as it was then known only from the type and a paratype that had not been seen by Soreng et al. (2003). On another collecting trip to Argentina in 2006 we recollected this species in the same region of Mendoza as the type.

Poa mendocina is in a distinctive species of *Poa*, now known from four localities in Argentina and Chile. However, *Poa mendocina* is not included in a key, descriptive floristic account, or revision of the genus in Chile. *Poa mendocina* has bisexual spikelets, short anthers (ca. 1 mm long), and lemmas with soft hairs along the lower portion of the keel and marginal nerves. Most of the lower florets have a sparse but distinct web of hairs on the dorsal side of the callus. In the treatment of *Poa* in northwest Argentina (Negritto & Anton 2000) this species keys out to *P. laetevirens* R.E. Fr. However, *P. mendocina* has relatively longer glumes that are subequal to their adjacent lemmas, and longer spikelets. In the Flora Patagónica *Poa* treatment (Nicora 1978) *P. mendocina* keys to either *Poa scaberula* Hook.f. or *P. hachadoensis* Nicora. *Poa mendocina* differs from the former species by having much larger spikelets that are few in number, and from *P. hachadoensis* by having a shorter stature, and short compact panicles. *Poa mendocina* superficially resembles *P. subspicata* (J. Presl) Kunth, a more northern species that occurs in Colombia, Venezuela, and Ecuador to the Departments of Ancash and Junín, Peru (and one record from Bolivia, Province of La Paz—Solomon 15876, MO—that requires verification). *Poa mendocina* differs from *P. subspicata* by having shorter panicles and by lacking hairs between the lemma keel and marginal veins. *Poa mendocina* is likely very closely related to *Poa hachadoensis* var. *pilosa*. However, *P. mendocina* is only 2–15 cm tall, with contracted, compact, 1–4.5 cm long panicles

that have steeply ascending branches to 1 cm long (versus 18–50 cm tall, with wide open, [4–]4.5–12 cm long panicles with spreading branches 1.5–4 cm long). Nicora and Roig (1998) were uncertain whether the species is rhizomatous or not, but further collections reveal it is cespitose, although its stems may be buried and elongated when rooted in thatch of wet meadows (vegas).

Known specimens of *Poa mendocina* from Argentina and Chile: **ARGENTINA. Mendoza:** Department of San Rafael, district of El Sosneado, cerro Volcán Overo, [ca. 34°36'21"S, 70°04'48"W], 3100 m, en la última vega alta, sobre el agua entre cojines de musgos, frecuente, 10 Feb 1955, A. Ruiz Leal 16894 (HOLOTYPE: MERL; ISOTYPES: BAA!, SI!); Department of Las Heras, Cerro Pelado, [ca. 32°47'S, 69°09'15"W], 3000 m, formando matas compactas, 19 Dec 1954, A. Ruiz Leal 16456 (PARATYPE: MERL); Department of Malargue, Río Salado headwaters, lago on northwest flank of Cerro Torrecillas, ca. 6 km northwest of Las Leñas, 35°06'44"S, 70°07'39.6"W, 3075 m, wet meadow and rocky slopes, 6 Mar 2006, P.M. Peterson, R.J. Soreng, D.L. Salariato & A.M. Panizza 19202 (SI!, US!). **CHILE. Región Metropolitana de Santiago:** Cajón del Maipo, Hito Paso Internacional Maipo, [ca. 34°11'31"S, 69°49'55"W], 3325 m, 17 Feb 1995, C. Villagrán, R. Villa & F. Hinojosa 8484 (SGO!).

Poa hachadoensis Nicora.—A second set of specimens that RJS thought might represent two new species are attributable to two varieties of *Poa hachadoensis*. Nicora (1977, 1978) reported *P. hachadoensis* var. *hachadoensis*, from Chile, Región of Bio-Bío, Las Lajas, along with three specimens in Argentina, Province of Neuquén, Departments of Picunches and Aluminé, and illustrated it. In 2002 R.J. & N. Soreng collected this variety in the regions of Araucanía and Bio-Bío, in Chile, and in 2006 we collected this variety in the same Departments of Neuquén, Argentina, as cited by Nicora (1977, 1978).

Nicora (1977, 1978) reported *P. hachadoensis* var. *pilosa* from Argentina, Province of Neuquén, Departments of Minas, Lácar, and Province of Chubut, Departments of Río Senguerr and Futaleufú. Three old collections by F.W. Pennell from Chile, Región Libertador General Bernardo O'Higgins, from the vicinity of Sewell, belong to *P. hachadoensis* var. *pilosa*. These represent the only known locations for the species in Chile. In 2006 Peterson et al. made the first collection of this variety in the province of Mendoza, Argentina.

Poa hachadoensis vars. *pilosa* and *hachadoensis* have curious distributions. The range of *P. hachadoensis* var. *pilosa* extends for 1300 km from 34° to 46° S latitude along the Andes. The range of *P. hachadoensis* var. *hachadoensis* covers 220 km north to south in the middle of the range of *P. hachadoensis* var. *pilosa* (which has three allopatric stations to the north and four to the south of the typical variety), where the latter variety appears to be absent. The two varieties have not been collected together. Both varieties have a distinct dorsal tuft of wooly hairs on the callus. *Poa hachadoensis* var. *pilosa* has hairs along lemma keel and marginal veins, whereas the typical variety has glabrous lemmas. After viewing a series of collections and finding no other characteristics to satisfactorily divide them, we are not inclined to separate them at the species rank. However, because they are geographically isolated, they appear to warrant subspecific status. Both varieties occur in mossy waterlogged habitats in meadows in *Araucaria* forests to lower alpine.

Poa hachadoensis* var. *hachadoensis new collections from Argentina and all vouchers for Chile: **ARGENTINA. Neuquén:** Picunches, 2 km E of Paso Pino Hachado, 38°39'41.3"S, 70°53'19.8"W, 1800 m, open, wet meadows with *Carex*, *Cortaderia*, and *Festuca*, 4 Feb 2003, P.M. Peterson, R.J. Soreng & N.F. Refulio-Rodríguez 17466 (SI!, US!); Aluminé, 19 km S of Moquehue on highway 11 towards Lago Norquenco, 39°05'2.7"S, 71°19'41.3"W, 1050 m, meadow with *Juncus*, *Carex*, and scattered *Escallonia* on slopes with *Araucaria araucana* and *Nothofagus antarctica*, 3 Feb 2003, P.M. Peterson, R.J. Soreng & N.F. Refulio-Rodríguez 17409 (SI!, US!); other collections from Argentina are cited by Nicora (1977, 1978). **CHILE.** [without other location] in "02/03/1939", A. Burkart, 9510 (SI!); **Region VIII:** Bio-Bío, La Laja, [ca. 37°27'S, 71°19'W], A. Burkart 27449 (SI, BAA); Parque Nacional Laguna Laja, southeast slope of Volcán Antuco, Estero el Aguado o del Volcán, above Vado, below a lone *Araucaria*, east of Los Angeles ca. 90 km, 37°27'43"S, 71°19'05"W, 1430 m, broad, nearly treeless, volcanic valley, scattered along creek bed in wet cobbly muck, 21 Jan 2002, R.J. Soreng & N.L. Soreng 7177 (US!, CONC!); **Region IX:** Araucanía, west entrance to Parque Nacional Conguillio, east end of Laguna Captrén, in valley between Volcán Llaima and Sierra Nevada, east of Temuco ca. 70 km, 38°38'22"S, 71°41'49"W, 1284 m, wet grassy, mossy meadow at upper end of the lake surrounded by old *Araucaria araucana*–*Nothofagus betuloides* forest, common in the open meadow, 22 Jan 2002, R.J. Soreng & N.L. Soreng 7192 (US!, CONC!).

Poa hachadoensis* var. *pilosa, a new collection in Argentina and all vouchers for Chile. **ARGENTINA. Mendoza:** Department of Malargue, Andes, Río Salado headwaters, Valle de Las Leñas, ca. 36 km northwest of Las Leñas on Highway 222, northwest of Malargue 65 km, 35°05'41.7"S, 70°08'10.6"W, 2740 m, grassy wet meadow with *Poa*, *Festuca*, and *Deschampsia*, 5 Mar 2006, P. M. Peterson, R.J. Soreng, D.L. Salariato, A.M. Panizza 19188, (SI!, US!); other collections from Argentina are cited by Nicora (1977, 1978). **CHILE. Region VI:** Libertador General Bernardo O'Higgins, Sewell ca. 34°04'S, 70°22'W, in 1925, F.W. Pennell 12312 (SGO!), 12314 (SGO!), 12324 (US!).

One last collection turned up at CONC, SGO, and US that appears to actually be a new species. By the time

RJS realized this was new, it was too late in the growing season to effectively search for it, as it flowers in early November. A cursory search was made for it around the crossing of Río Renaico by Highway 5, southeast of Mininco. However, the grasses were in poor shape by the time we passed through the area in late January. The species is considered to be dioecious. The SGO specimen appears to have been pulled up as a clump, the staminate and pistillate panicles are not attached to a single base and may be from different individuals. The US sheet appeared to have two separate clumps, one of each sex (they have been separated and remounted on the holotype). In any case, the specimens are quite different from the other dioecious species of *Poa* in South America, all 22 members of which belong to *Poa* sect. *Dioicopoa* E. Desv. Unlike *Dioicopoa* species, the Pfister specimens have sparse to moderately congested, somewhat lax, slender panicles with slender branches that are naked in the lower 1/2, and the pistillate and staminate spikelets are undifferentiated in size, form, floret number, and pubescence. The lemmas are glabrous and the calluses have a well developed web, as in *Poa hachadoensis* var. *hachadoensis*, but the anthers are 2–2.5 mm long. The blades are densely hispidulous-strigulose adaxially on and between the veins, as in *Poa* sect. *Madropoa* Soreng subsect. *Madropoa* Soreng and subsect. *Epiles* Soreng (seven and five spp. respectively, in North America, Soreng 2007). The new species is tentatively placed in *Poa* subsect. *Madropoa* where it most closely resembles *Poa diaboli* Soreng & D.J. Keil, a rare species of the California Floristic Province (Soreng & Keil 2004). If *Poa pfisteri* is confirmed to belong to one of the above *Madropoa* subsections it would be the only occurrence of any species of either of these anywhere south of the state of Durango, Mexico. The infrageneric relationships of some or all native gynomonocious species of South American *Poa* may be with “*Poa nervosa*” complex of *Poa* sect. *Madropoa* (eight spp. of North America; Soreng 2007; Soreng & Keil 2003), but this needs further study. Curiously, there is only one species of *Poa* sect. *Dioicopoa* in North America (Soreng 2007), *Poa arachnifera* Torr., nearly all species of which have tightly contracted panicles with crowded spikelets, and none have hispidulous-strigulose adaxial leaf surfaces.

The new species is here named for the collector, Don Augusto Pfister, who collected in Chile from 1941 to 1945 (according to Harvard University Herbaria, Index of Botanists, Index Herbariorum - Collectors, http://asaweb.huh.harvard.edu:8080/databases/botanist_index.html [accessed May 2008]), but from 1932 to 1964 (according to CONC herbarium records database; Clodomiro Marticorena, pers. comm.). There are 5080 sheets collected by Pfister in CONC, with duplicates in SGO, and US (at least for grasses). Pfister collected plants in all regions of Chile, with the majority coming from around the Termas de Chillán, in the Region of Bio-Bío, where he frequently bathed to alleviate his rheumatoid arthritis (Clodomiro Marticorena, pers. comm.).

***Poa pfisteri* Soreng, sp. nov. (Figs. 1a–n; 2).** TYPE: CHILE. REGION XIII: Bio-Bío, Province of Santa Barbara, Puente Mininco, 1 Nov 1943, A. Pfister s.n. (HOLOTYPE (pistillate and staminate plants): US-2150300!; ISOTYPES (pistillate and staminate plants): CONC-6191!, SGO-73895!).

A *Poa diaboli* Soreng & D.J. Keil plantis dioeciis? (versus sequente gynomonocciis), surculo sterili tantum extravaginali (versus extravaginali et intravaginali), vaginis conatis 1/5–1/2 (versus 2/5–7/10), laminis caulis 0.8–1.4 mm latis (versus 1.5–2.4 mm), conduplicatis cum marginis involutis (versus planis), laminis supremis plus redactis quam laminis subtendis (versus subaequalibus), ramis paniculis 2–3 pro nodo (versus 1–2), tereter vel leviter angulatis (versus valde angulosis), uncis parvis paucum differentiatis supra vel apud angulos obtusos (versus manifeste longioribus et accumulatis supra distinctos angulos), flosculis plerumque 3 vel interdum 4 [versus 3–6(–7)], rachillis internodalibus laevibus (versus leviter vel dense grosse scabris vel infrequenter laevibus), glumis primis 2–3 mm longis [versus (2–)2.7–3.8 mm], 1-nervis (versus 3-nervis), calli pili origine magis apud dorsum concentrata (versus diffusa), lemmatis superficiebus laevibus vel sparsim scabris apud apicem (versus raro vel dense, vel infrequenter sparsim scabris omnino), palearum carinis sparsim scabris (versus dense scabris supra carinos), laevibus intra carinos (versus scabris), differt.

Plants perennial; dioecious (?); short rhizomatous and stoloniferous, loosely tufted, tillers extravaginal. Culms 45–50 cm tall, 0.5–0.8 mm diam, geniculate above, slender, bases erect, frequently branching above the base, terete; nodes terete, 1 exerted in distal 1/2–1/3 of culm. Leaf sheaths, uppermost closed 1/5–1/2 their length, weakly keeled, moderately to densely scabrous distally, sometimes lightly strigulose distally, basal sheaths becoming gray-brown, fibrous, bases scabrous, glabrous, distal sheaths 2–3 times longer than their blades; collars slightly thickened; ligules (0.2–)0.5–2.5 mm long, uppermost 1.5–2.8 mm long; lower

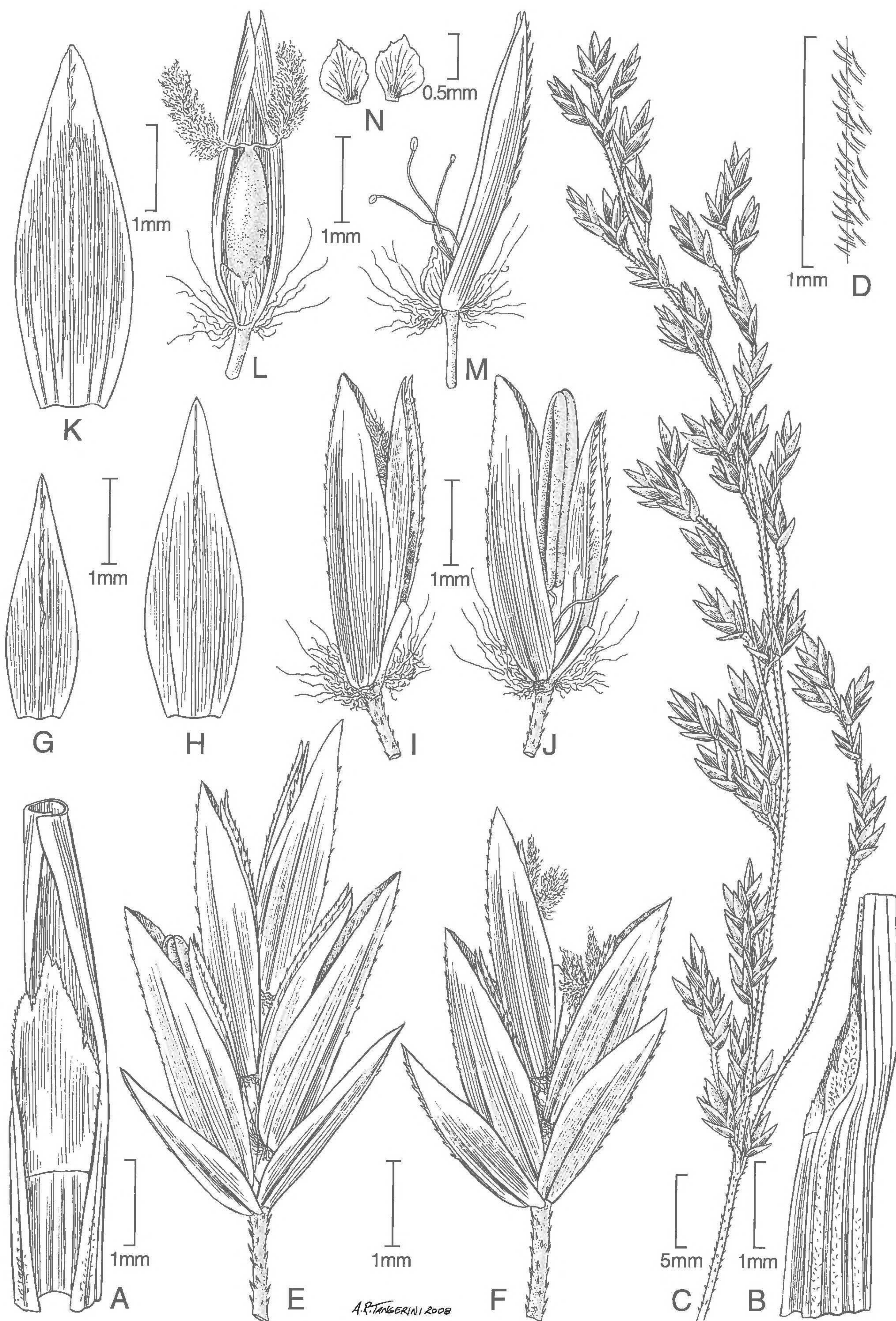


FIG. 1. *Poa pfisteri* Soreng [A. Pfister 6191 (US-2150300)]. A. Ligule, adaxial view. B. Ligule and collar, lateral view. C. Pistillate inflorescence. D. Leaf blade, adaxial surface. E. Staminate spikelet. F. Pistillate spikelet. G. Lower glume. H. Upper glume. I. Pistillate floret, lateral view. J. Staminate floret, lateral view. K. Lemma. L. Pistillate flower, dorsal view (staminodes not shown). M. Palea and staminodes in pistillate flower, lateral view. N. Lodicules.

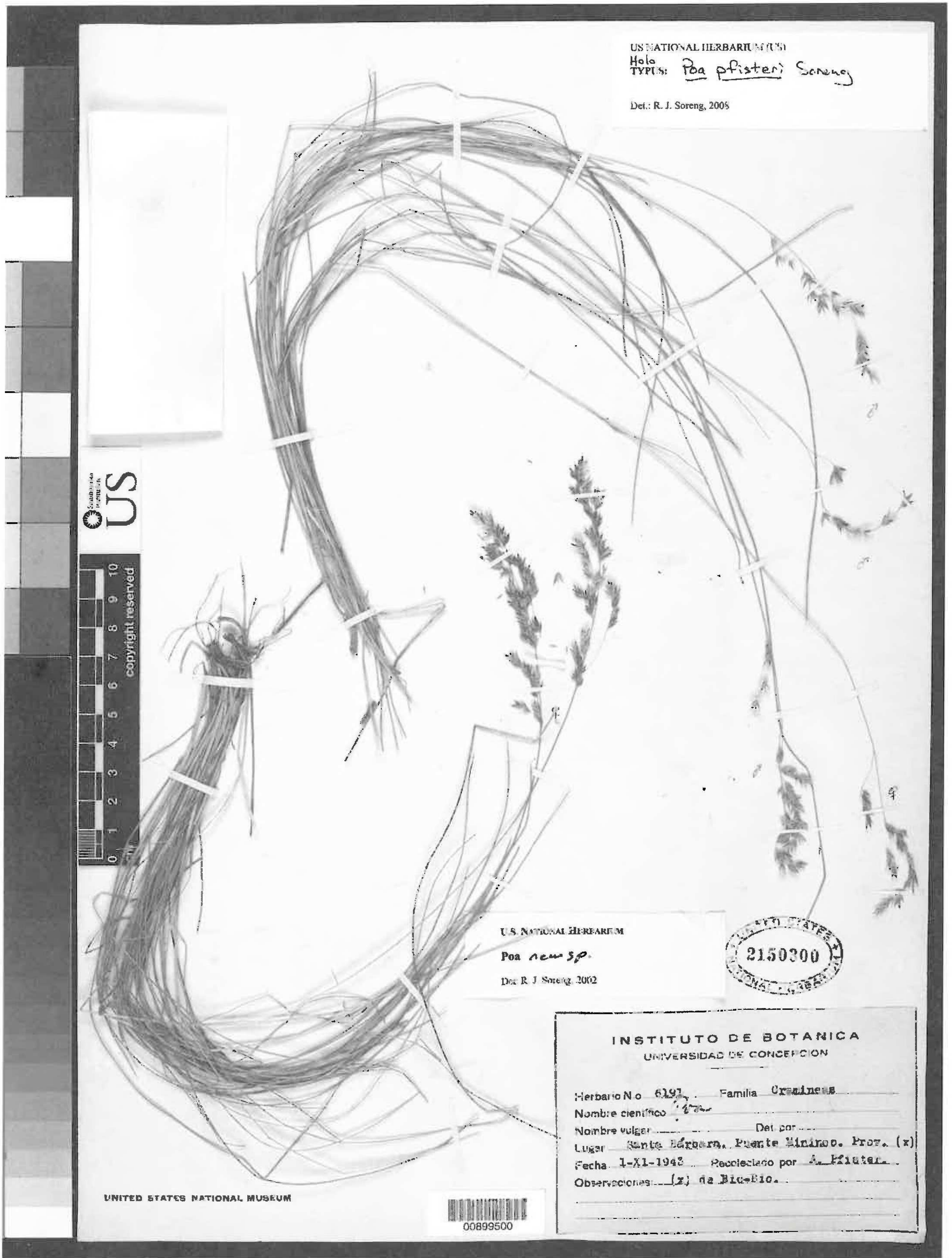


FIG. 2. *Poa pfisteri* Soreng, holotype, A. Pfister 6191 (US-2150300). The upper tuft is staminate (one pistillate inflorescence is not attached to this tuft but is mixed in with the staminate inflorescences). The lower tuft is pistillate.

ligules abaxially densely scabrous, apices obtuse or truncate; upper ligules abaxially smooth or sparsely scabrous, apices acute, erose; sterile shoot blades to 25 cm long, involute with tightly enrolled margins, abaxially smooth or very sparsely scabrous, adaxially densely hispidulous-strigulose on and between the veins, ligules of sterile shoots like those of the distal shoots of the culm; cauline blades 4–8 cm long, 0.4–0.7 mm wide in side view, involute with tightly inrolled margins, thin, soft, abaxially veins prominent, smooth except for scabrous keel and margins, adaxially densely strigulose on and between veins, narrowly prow-tipped, mid-culm blades to 31 cm, uppermost 2.7–5.3 cm long, the longest on the culm. Panicles 4–11 cm long, lax, broadly lanceoloid, loosely contracted, sparse to loosely congested, with 10–90 spikelets, lower axis smooth, proximal internodes 1.5–2.8 cm long, with 2 or 3 branches per node; branches, the longest 2–3.5 cm long, loosely ascending, lax, capillary, terete to slightly angled, sparsely to moderately scabrous proximally, moderately to densely scabrous distally, with 3–9 spikelets these mostly loosely overlapping in the upper 1/2, pedicels commonly ca. 1 mm long, mostly shorter than their spikelets. Spikelets 5–6 mm long, to 3 times longer than wide, laterally compressed, staminate and pistillate spikelets undifferentiated; purplish at anthesis, florets (2–)3–4; rachilla internodes 0.5–1.5 mm long, visible from the side, smooth, glabrous; glumes, distinctly keeled, slightly unequal, keels smooth or sparsely scabrous, sometimes with a few hooks on the sides near the apex, margins with few hooks; lower glumes 2–3 mm long, 0.3–0.4 mm wide in side view, subulate, 1-veined; upper glumes 2.9–3.5 mm long, 0.4–0.5 mm long in side view, narrowly lanceolate, 3-veined; calluses with a slightly diffuse dorsally concentrated tuft of soft, wooly hairs about 1/3–3/4 the lemma in length; lemmas 3.8–4.5 mm long, 0.6–0.7 mm wide in side view, narrowly lanceolate, distinctly keeled, glabrous throughout, lightly scabrous along keel upper 1/2, smooth or lightly scabrous near the margins and apex, intermediate veins faint to moderately prominent, margins narrowly scarious, edges smooth or with a few hooks, glabrous, apices narrowly acute; paleas slightly shorter than lemmas, sparsely to moderately scabrous over the keels, in the distal 1/2, between keels smooth, glabrous; lodicules ca. 0.6 mm long, ovate, with a small lateral lobe; stamens three, anthers 2–2.5 mm long or vestigial in pistillate flowers (0.2–0.4 mm long); ovaries glabrous with two styles and stigmas, vestigial in staminate flowers. Caryopses 2 mm long (immature), fusoid, ventrally sulcate, glabrous, adhering to the palea. Chromosome number unknown.

Distribution and Habitat.—**CHILE. Region VIII:** Bio-Bío, Province of Santa Bárbara. Known only from the type collection in the central valley of Chile. The one collection is presumably from near the northern Región IX Araucanía border, from slopes along the Río Renaico and tributaries east of Mininco, roughly from 37°47'S, 72°48'W, where elevations range between 200 and 300 m. If the species is still extant, it likely occurs in the adjacent Región of Araucanía.

ANNOTATED KEY TO SPECIES OF *NICORAEPOA* AND *POA* (EXCEPT SECT. *DIOICOPOA* SPECIES)
IN CHILE REGIONS COQUIMBO TO MAGALLANES

Accepted taxa also occur in Argentina unless stated to be “endemic to Chile.” Introduced taxa are marked*. See *Poa* in *Catalogue of New World Grasses* for synonyms (Soreng et al. 2003, and on-line). Authors are not given for taxa in the key if the taxon was already discussed above.

1. Ligules 6–23 mm long, apex margins conspicuously lacerated, glabrous; plants without rhizomes, forming robust tussocks, (0.5–)1–2.5 m tall; panicles tightly contracted; florets slightly contorted, twisted, glabrous; lemmas with a stiff cusp or stout mucro up to 3 mm long; plants from islands (or possibly mainland coast of Straights of Magellan), bluffs by the coast on the farthest southern reaches of Tierra del Fuego, Magallanes (*P.* subgen. **Ochlopoa** sect. **Parodiochloa**) _____ ***P. flabellata*** (Lam.) Raspail
1. Ligules mostly 0.5–6 mm long, but if elongated, then apex not conspicuously lacerated; plants rhizomatous, or if non-rhizomatous, then mostly much less than 1 m tall; panicles tightly contracted to loose and open; florets not at all contorted and/or twisted, glabrous or pubescent; lemmas rarely cuspidate or mucronate, or awned, but if awned then the awn slender (but see also *P. darwiniana*); plants widespread.
2. Leaf blades adaxially with multiple ridges and valleys on either side of the midrib, ribs broader than the valleys; ligule margins ciliolate to ciliate; callus hairs (when present) forming a crown surrounding

- the base of the lemma, hairs straight or slightly sinuous; plants with stout rhizomes (**Nicoraepoa**).
3. Plants forming low spiny mats, culms to 20 cm tall; leaf blades bluish-white, tightly folded, rigid, apex sharply pointed and pungent; plants in moist, sub-saline ground interior Patagonia (Sierra Baguales), NE Última Esperanza, Magallanes _____ **N. pugionifolia**
 3. Plants not forming low spiny mats, culms usually over 20 cm tall; leaf blades green or bluish-white, flat or loosely folded, somewhat rigid to lax, apex sharply pointed, but not piercing; plants of wet coastal sub-saline to interior fresh water meadow and riparian habitats.
 4. Plants with viviparous spikelets.
 5. Inflorescences narrowly lanceolate, erect, branches erect; florets glabrous; plants of low elevations, generally in sub-saline coastal wetlands, Magallanes _____ **N. robusta**
 5. Inflorescences ovoid, somewhat nodding, branches usually lax, ascending; florets usually with at least a few hairs on the callus; plants mainly of SW sub-coastal and low interior regions in fresh water wetlands, Bio-Bío to northern Magallanes, rarely further south _____ **N. chonotica**
 4. Plants without viviparous spikelets.
 6. Florets glabrous; plants of low elevations often near the coast, Magallanes _____ **N. robusta**
 6. Florets pubescent with at least well developed crown of hairs around the callus; plants widespread.
 7. Ligules ciliate, cilia as long or longer than the membranous base; leaf blades soft, flat, short, mostly 2–6 cm long; plants from mossy vegas above treeline _____ **N. subenervis**
 8. Panicles 5–15 cm long, (0.5–)1–5 cm wide, contracted or mostly open; plants of Andean Valparaíso and Región Metropolitana _____ **N. subenervis** subsp. **spgazziniana**
 8. Panicles 3–6.5(–10) cm long, ca.0.5(–1) cm wide, contracted; plants of Patagonia (Sierra Baguales), NE Última Esperanza, Magallanes _____ **N. subenervis** subsp. **subenervis**
 7. Ligules ciliolate, the cilia much shorter than the membranous base; leaf blades firm, flat or folded, elongated, some generally well exceeding 6 cm long; plants from coastal to subalpine wet meadows.
 9. Panicles contracted, 1–2 cm wide; lemmas acute to cuspidate or slender mucronate to awned, apex often with minute lateral lobes on the sides of the awn, glabrous and scabrous or weakly pubescent on the keel; glumes usually as long or longer than adjacent lemmas; plants from upper elevations from Bio-Bío to Los Ríos, infrequent southward to northern Aisén _____ **N. andina**
 9. Panicles loosely contracted to open, 2–15 cm wide; lemmas obtuse to acute, entire or mucronate, but apex without lateral lobes, glabrous and scabrous, or also pubescent on the keel and sides; glumes usually shorter than adjacent lemmas; plants from low to mid elevations from Bio-Bío to northern Magallanes, rarely further south _____ **N. chonotica**
 2. Leaf blades adaxially with two grooves only, one on either side of the midrib, ribs not prominent and broader than the intercostal regions; ligule margins smooth or scabrous or at most ciliolate; callus hairs absent or present, usually originating in dorsal tuft from below the keel of the lemma (sometimes with secondary tufts below the marginal veins), hairs plicate or woolly (web), less often forming a crown originating around the base of the lemma and then woolly or with hairs straight to slightly sinuous; plants with slender rhizomes, or without rhizomes (**Poa**).
 10. Plants with viviparous spikelets; plants of Tierra del Fuego and southern Patagonia mountains, Los Lagos to Magallanes.
 11. Plants with bulbous shoot bases; plants of disturbed ground, from northern Magallanes _____ ***P. bulbosa**
L. subsp. **vivipara** (Koeler) Arcang.
 11. Plants without bulbous shoot bases; plants widespread (**Poa** subgen. **Poa** sect. **Dioicopoa**)
_____ **P. alopecurus** (Gaudich. ex Mirb.) Kunth subsp. **fuegiana** (Hook. f.) D.M. Moore & Dagg.
plants of Aisén to southern Magallanes; **P. obvallata** Steud.—plants of rocky slopes
from upper forest openings to above treeline, from southern Araucanía to northern Aisén.
 10. Plants without viviparous spikelets (or rarely with them, but then of Maule and more northern regions); plants widespread.
 12. Plants with unisexual flowers only; anthers in staminate plants 1.3–3(–4) mm long.
 13. Panicles loosely flowered, loosely contracted, somewhat lax; branches slender, plainly exposed, naked in the lower 1/2; spikelets mostly 5–6 mm long; pubescence of staminate and pistillate florets undifferentiated, lemmas glabrous and calluses pubescent; callus with dorsally concentrated crinkled hairs; leaf blades adaxially hispidulous-strigulose pubescent costally and intercostally; plants of presumably of steep rocky slopes in sclerophyllous Patagonian forest openings, in the central valley in Bio-Bío and Araucanía _____ **P. pfisteri**
 13. Panicles densely flowered (often interrupted), contracted, erect; branches stout, often hidden by the spikelets, commonly flowered in the lower half; spikelets mostly 5–8 mm long; pubescence

of staminate and pistillate florets differentiated (staminate florets usually glabrous or very sparsely pubescent), or both lemmas and calluses glabrous throughout; leaf blades smooth scabrous adaxially, sometimes densely scabrous costally and intercostally; callus glabrous or pubescent with plicate, or crinkled hairs, from a tight dorsal tuft, and often from tufts below the marginal veins, or with a crown of fairly straight to slightly sinuous hairs (**Poa** subgen. **Poa** sect. **Dioicopoa**).

Species of this section are notoriously difficult to key out, and staminate plants commonly have glabrous or nearly glabrous lemmas and can only be keyed vegetatively (See Giussani 2000). It is not possible for us to write a satisfactory key for these until the Chilean species are better known. However, we provide accepted names for species that are known to occur in the region of Chile covered in this key, along with general distribution: **Poa alopecurus** (Gaudich. ex Mirb.) Kunth subsp. **alopecurus**—plants of mesic steppe and forest openings, Magallanes; **P. bonariensis** (Lam.) Kunth—This name has been commonly applied to specimens of *Dioicopoa* from central Chile, but most of this material seen by RJS was redetermined as *P. denudata*, *P. lanuginosa*, or *P. paposana*. Several CONC specimens from low to middle elevations in central Chile, originally determined as *P. bonariensis*, need further study. The species is common in the pampas of Argentina and it is expected as a waif in Chile; **P. cumingii**—plants of coastal dunes between Coquimbo and Los Lagos (northern Chiloé), endemic to Chile; **P. denudata** Steud.—plants of low elevation forest openings and coastal bluffs and cliffs, from the coast of Bio-Bío to Los Lagos extending to Argentina; **P. gayana** E. Desv.—plants of the openings in middle to upper forested to shrubby mountain slopes of the interior central Andes of Chile, Coquimbo to Bio-Bío (name possibly misapplied). This species is highly variable and perhaps represents a large hybrid zone between *P. holciformis* in the alpine and a rhizomatous species of lower elevations with a webbed callus, perhaps *P. lanuginosa*; **P. gayana** × **holciformis**—plants intermediate between these species are frequent and occur on rocky slopes from high to medium altitudes in the Andes, Coquimbo to Maule; **P. holciformis** J. Presl—plants of open treeless slopes in the high Andes, Coquimbo to Maule, expected on high dry slopes further south also; **P. lanuginosa** Poir.—the typical form with webbed calluses occurs from low elevations in the Central Valley to middle elevation forested slopes, Metropolitana to Aisén, and a form with glabrous calluses occurs in riparian meadows in Patagonian steppe, Magallanes; **P. obvallata** Steud.—plants of rocky open forest and alpine volcanic slopes in the Andes, Bio-Bío to Los Lagos; **P. paposana**—plants of rocky slopes in fog zones of coastal hills, Valparaíso to southern Antofagasta, endemic to Chile; **P. spiciformis** (Steud.) Hauman & Parodi var. **spiciformis**—plants of dry Patagonian steppe, Magallanes; **P. spiciformis** var. **iberi** (Phil.) Giussani—plants of dry Patagonian steppe, Magallanes.

12. Plants with some or all florets bisexual; developed anthers sometimes shorter, 0.2–3 mm long.
 14. Anthers 0.2–1(–1.2) mm long.
 15. Glumes exceeding or equaling the lower floret, similar in form and length; plants of riparian meadows in Patagonian steppe, from Magallanes (*Dissanthelium* s.l.) _____ **P. atropidiformis** Hack.
 16. Lemmas glabrous _____ **P. atropidiformis** var. **atropidiformis**
 16. Lemmas pubescent _____ **P. atropidiformis** var. **patagonica** (Parodi) Nicora
(This variety, known only from Argentina, is expected in Chile)
 15. Glumes shorter than the lower floret, similar or unequal in form or length; plants widespread.
 17. Plants annual (infrequently surviving more than one season); callus glabrous; palea keels softly pubescent, not at all scabrous; terminal florets within spikelets often pistillate; primarily of disturbed ground, coastal to above treeline (**Poa** subgen. **Ochlopoa** sect. **Micrantherae**).
 18. Anthers 0.2–0.5 mm long; branches ascending, spikelets crowded along the branches; infrequent, distribution poorly documented, known from Valparaíso and Metropolitana _____ ***P. infirma** Kunth
 18. Anthers 0.5–1.0 mm long; branches ascending to spreading, spikelets loosely arranged along the branches; plants common, widespread, of all Regions _____ ***P. annua** L.
 17. Plants perennial (sometimes weakly so); callus glabrous or webbed; palea keels glabrous and scabrous, also sometimes softly pubescent medially; all florets bisexual.
 19. Florets glabrous; lemmas and rachillas densely scabrous throughout, glabrous, lemma apexes with a short stiff scabrous mucro (**Poa** subgen. and sect. uncertain, possibly sect. *Dasypoa*); plants of rocky coastal cliffs and slopes of the outermost islands of Tierra del Fuego, Magallanes (Cabo de Hornos) _____ **P. darwiniana** Parodi
 19. Florets pubescent; lemmas and rachillas not densely scabrous throughout, glabrous or pubescent, lemma apexes without mucros; plants widespread.

20. Inflorescences congested, contracted, spikelets crowded; branches quite scabrous; lemmas pubescent between the veins; callus with a dorsal tuft of crinkled hairs, sometimes with secondary tufts below the marginal veins; plants of disturbed ground in upper forested to subalpine shrub zones, from Mexico to Tierra del Fuego, Arica & Parinacota to Magallanes in Chile (**Poa** subgen. **Poa** sect. **Dasyppoa**) _____ **P. scaberula**
20. Inflorescences open or contracted, spikelets not crowded; branches smooth; lemmas glabrous between the veins; callus with a dorsal tuft of crinkled hairs or glabrous, secondary tufts absent; plants of more stable habitats, from Metropolitana to Araucanía (**Poa** subgen. **Poa** sect. **Homalopoa** s.l.).
21. Culms 4–20 cm tall; inflorescences contracted, ca. 0.5 mm wide, slightly spreading in anthesis to 1 cm wide; plants of high wet meadows and slopes in the central Andes, from Metropolitana _____ **P. mendocino**
21. Culms 15–60 cm tall; inflorescences open, 2–5 cm wide; plants of wet mossy meadows and slopes in forest openings to low alpine regions, from Liberator General O'Higgins to Araucanía _____ **P. hachadoensis**
22. Lemmas glabrous; plants of Bio-Bío to Araucanía _____ **P. hachadoensis**
var. **hachadoensis**
22. Lemmas pubescent; plants of Liberator General O'Higgins _____ **P. hachadoensis**
var. **pilosa**
14. Anthers 1.3–3(–4) mm long.
23. Florets glabrous; blades flat, apexes abruptly naviculate; plants of wet meadows in the central Andes, from Valparaíso to Metropolitana _____ **P. acinaciphylla** E. Desv.
This taxon possibly originated from past intersectional hybridization between **P.** subgen. **Poa** sect. **Acutifoliae**; **P.** subgen. **Poa** sect. **Dioicopoa**; *P. planifolia* × *P. holciformis*.
23. Florets pubescent; blades flat, folded, or involute, apexes tapered or naviculate; plants in various habitats, widespread.
24. Blades 5–10 mm wide, prominently keeled, flat to tightly folded, apex abruptly attenuated, acuminate, and pungent; florets pubescent; lemmas thin and lustrous, usually sparsely short pubescent along the keel; callus with a dorsal tuft of woolly hairs (webbed); plants of wet subsaline to freshwater meadows, springs, and stream-sides above tree line in the central Andes, from Valparaíso to Metropolitana (**Poa** subgen. **Poa** sect. **Acutifoliae**) _____ **P. planifolia**
24. Blades 1–5(–7) mm wide, not prominently keeled, flat to folded, apex obtuse to acute, not pungent; florets glabrous or pubescent; lemmas dull (not reflective) or at least not especially thin and lustrous, glabrous or pubescent; callus glabrous or pubescent; plants of various habitats and distributions.
25. Lemmas pubescent only on the keel, or also sparsely so on the lower 1/4 of the marginal veins, intermediate veins pronounced; first glumes 1-nerved, often sickle-shaped; ligules acuminate; callus with a well developed dorsal tuft of woolly hairs (webbed); plants of disturbed ground in forested zones, known from Valparaíso south to Magallanes (**Poa** [subgen. **Ochlopoa** × **Stenopoa**] sect. **Pandemos**) _____ ***P. trivialis** L. subsp. **trivialis**
25. Lemmas pubescent on the keel and marginal veins and sometimes on intermediate veins and sometimes between the veins, intermediate veins faint to pronounced; first glumes (1)3-nerved, rarely sickle-shaped; ligules truncate to acuminate; callus glabrous or pubescent with a web or crown of hairs; plants widespread and of various distributions.
26. Sheaths compressed-keeled; panicles open; plants wet to mesic meadows, thickets, and open forests, from Tierra del Fuego to northern Magallanes, but likely in Aisén also (**Poa** subgen. **Poa** sect. **Poa**) _____ **P. yaganica** Speg.
Poa ayseniensis, from Rio Aisén, is known only from the type. The original description does not adequately distinguish this taxon from *P. yaganica*, a species similar to *P. pratensis*, with a web, but with more compressed sheaths, more rounded to acute ligule apexes, and longer glumes.
26. Sheaths not noticeably compressed-keeled; panicles contracted or open.
27. Plants rhizomatous, spreading; upper culm sheaths closed more than 1/4–2/5 the length; lemmas glabrous between the veins; callus with a

well developed dorsal web of crinkled hairs (**Poa** subgen. **Poa** sect. **Poa**) _____ **P. pratensis** L.

Poa pratensis subsp. **alpigena** (Lindm.) Hiitonen has lemmas with glabrous or sparingly pubescent intermediate veins, narrowly ovate spikelets, narrowly pyramidal inflorescences with mostly smooth branches, and only extravaginal shoots. It is apparently indigenous in the Magallanes Region as a disjunct taxon from northern hemisphere boreal regions. Introduced **P. pratensis* s.l. is known from disturbed ground from Coquimbo to Magallanes, but its races have not been sorted out taxonomically in Chile. The lemmas are glabrous between the keel and marginal veins, spikelets more ovate, inflorescences pyramidal with smooth or scabrous branches, and some shoots usually intravaginal.

27. Plants without rhizomes, strictly tufted; upper culm sheaths closed 1/10–1/5 the length; lemmas sometimes pubescent between the veins; callus glabrous or with a crown of hairs or with a dorsal web of crinkled hairs.
28. Callus with a crown of hairs 0.2–2.0 mm long around the base of the lemma (**Poa** subgen. **Stenopoa** sect. **Secundae**).
29. Lemmas weakly keeled, pubescent on and between the veins at least at the base, pubescence of the keel and between veins little differentiated; panicles secund, contracted to loosely contracted, much longer than wide (except when somewhat open in anthesis); plants of subalpine to lower alpine open slopes, from Valparaíso to Magallanes _____ **P. secunda** J. Presl. subsp. **secunda**
29. Lemmas distinctly keeled, sometimes glabrous between the veins, but if pubescent between the veins present, then hairs distinctly longer on the keel than between the veins; panicles loosely contracted to open, nodding and about as long as wide; plants of subalpine open slopes, from Bio-Bío to Magallanes _____ **P. stenantha** Trin. var. **stenantha**
28. Callus glabrous or with a dorsal web at the base of the keel of the lemma.
30. Upper culm node in the lower 1/3 of the culm; upper culm leaf blades distinctly shorter than the upper sheath; lemmas with at least a few hairs between the keel and marginal veins near the base or on the intermediate veins; callus glabrous or webbed.
31. Spikelets (3.8–)4–5 times as long as wide (when closed); lemmas weakly keeled, pubescent on the keel and marginal veins and between the veins at least near the base, the hairs about the same length between the veins and those on the keel and marginal veins; callus glabrous; plants of subalpine to lower alpine open slopes, from Valparaíso to Magallanes (**Poa** subgen. **Stenopoa** sect. **Secundae**) _____ **P. secunda** subsp. **secunda**
31. Spikelets 2–3 times as long as wide (when closed); lemma distinctly keeled, pubescent between the veins at least near the base or not, sometimes pubescent on the keel and marginal veins only, or on these and the lateral veins only, the hairs shorter between the veins than those on the keel and marginal veins; callus glabrous or webbed; plants of subalpine open slopes, from Aisén to Magallanes (**Poa** subgen. **Stenopoa** sect. **Stenopoa**) _____ **P. glauca** Vahl subsp. **glauca**
30. Upper culm node in the middle to upper 1/3 of the culm; upper culm leaf blades subequal or longer than the upper sheath; lemmas glabrous between the keel and marginal veins; cal-

lus webbed; plants introduced (**Poa** subgen. **Stenopoa** sect. **Stenopoa**).

32. Ligules 0.2–1 mm long, apex truncate; web sparsely developed, usually less than 1/2 the lemma in length (when stretched out); rachilla usually softly puberulent; plants of mesic forest margins, known from Magallanes _____ ***P. nemoralis** L.
32. Ligules 1–4 mm long, apex obtuse to acute; web moderately well developed, usually more than 1/2 the lemma in length (when stretched out); rachilla glabrous with minute bumps or sparsely hispidulous; plants usually of riparian meadows, known from Magallanes _____ ***P. palustris** L.

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